REMARKS

Reconsideration and withdrawal of the rejections made in the mentioned Office Action are respectfully requested, in view of the following remarks.

Summary of Office Action

Claims 11-30, i.e., all claims of record, are rejected under 35 U.S.C. §§ 102(b) and 102(e), respectively, as allegedly being anticipated by JP 05-057507 (hereafter "KYOCERA") and by U.S. Patent No. 5,945,207 to KUTSCHER et al. (hereafter "KUTSCHER").

Claims 11-30 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over KYOCERA or KUTSCHER in view of U.S. Patent No. 4,966,501 to NOMURA et al. (hereafter "NOMURA")

The rejection of claims 11-28 under 35 U.S.C. § 102(e) over U.S. Patent No. 5,861,210 to LEANDER et al. in the previous Office Action mailed February 26, 2004 is not mentioned in the present Office Action, wherefore it is assumed that this rejection has been withdrawn.

Response to Office Action

Reconsideration and withdrawal of the rejections of record are respectfully requested.

Response to Rejection of Claims under 35 U.S.C. 102(b) over KYOCERA

Claims 11-30 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by KYOCERA for the reason set forth in the previous Office Action. The only reason given for the maintenance of this rejection is that the Examiner disagrees with Applicants' alleged argument that a surface roughness of less than 0.4 μm does not include a surface roughness of 0.2 μm or less.

This rejection is respectfully traversed. In this regard, Applicants note that the issue here is not whether or not a surface roughness of 0.4 μm or less includes a surface roughness of 0.2 μm or less, but whether there is a difference in technical terms between a surface roughness of 0.4 μm or less and a surface roughness of 0.2 μm or less. As already pointed out in response to the previous Office Action, the results summarized in e.g., Table I at page 12 of the present application illustrate that such a difference in technical terms is indeed present.

In any event, regardless of whether or not there is difference between a surface roughness of 0.4 μm or less and a surface roughness of 0.2 μm or less, it is pointed out that the present independent claims additionally recite, *inter alia*, a surface roughness of 0.2 μm or less

> substantially at a blade-edge ridge and in a region which extends at least 200 μm (500 μm) from a rake face side boundary of the ridge toward a rake face side, and extends at least 50 μm (200 μm) from a flank side boundary of the ridge toward a flank side.

KYOCERA appears to merely recite a surface roughness of 0.4 μm or less and is completely silent as to the size of the region within which this surface roughness is to be 0.4 μm or less. It is noted that the Examiner has not given any reason whatsoever as to why the blade of KYOCERA would necessarily have the claimed surface roughness within the region recited in the present independent claims. For at least this reason, KYOCERA does not anticipate any of the claimed subject matter.

Further, with respect to newly rejected claims 29 and 30, the present Office Action does not explain where in KYOCERA all of the additional elements recited in these claims are allegedly disclosed.

Accordingly, for at least the reasons set forth above, withdrawal of the rejection of the present claims under 35 U.S.C. § 102(b) over KYOCERA is warranted and respectfully requested.

Response to Rejection of Claims under 35 U.S.C. 102(e) over KUTSCHER

Claims 11-30 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by KUTSCHER. The only reason given for the maintenance of this rejection is that the Examiner disagrees with Applicants' alleged argument that a surface roughness of less than 0.4 μm does not include a surface roughness of 0.2 μm or less.

This rejection is respectfully traversed as well. Applicants note again that the issue

here is not whether or not a surface roughness of 0.4 μm or less includes a surface roughness of 0.2 μm or less, but whether there is a difference in technical terms between a surface roughness of 0.4 μm or less and a surface roughness of 0.2 μm or less. As already pointed out, the results summarized in e.g., Table I at page 12 of the present application illustrate that such a difference in technical terms is indeed present.

However, regardless of whether or not there is difference between a surface roughness of 0.4 μm or less and a surface roughness of 0.2 μm or less, it is again pointed out that the present independent claims additionally recite, *inter alia*, a surface roughness of 0.2 μm or less

> substantially at a blade-edge ridge and in a region which extends at least 200 μm (500 μm) from a rake face side boundary of the ridge toward a rake face side, and extends at least 50 μm (200 μm) from a flank side boundary of the ridge toward a flank side.

KUTSCHER appears to merely recite a surface roughness of 0.4 μm or less and is completely silent as to the size of the region within which this surface roughness is to be 0.4 μm or less. It is noted that the Examiner has not given any reason as to why the blade of KUTSCHER would necessarily have the claimed surface roughness within the region recited in the present independent claims. For at least this reason, also KUTSCHER does not anticipate any of the claimed subject matter.

Further, with respect to newly rejected claims 29 and 30, the present Office Action

does not explain where in KUTSCHER all of the additional elements recited in these claims are allegedly disclosed.

Accordingly, for at least the reasons set forth above, withdrawal of the rejection of the present claims under 35 U.S.C. § 102(e) over KUTSCHER is warranted and respectfully requested.

Response to Rejection of Claims under 35 U.S.C. 103(a)

Claims 11-30 are newly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over KYOCERA or KUTSCHER in view NOMURA. In this regard, the rejection acknowledges that KYOCERA and KUTSCHER do not explicitly disclose the claimed surface roughness, but asserts that NOMURA allegedly discloses that coatings having the claimed surface roughness improve the performance of cutting tools. The rejection also contends that "the criticality of the length region in the rake and flank side of the exposed alumina layer has not been shown and is considered by the examiner as a design choice." Page 3, next-to-last paragraph of the present Office Action.

This rejection is respectfully traversed as well. Initially it is noted that the rejection implicitly acknowledges that "the length region in the rake and flank side of the exposed alumina layer" is not disclosed in any of the three documents relied on in this rejection, including KYOCERA and KUTSCHER, (but is considered by the Examiner as a design

choice) which confirms Applicants' position set forth above, i.e., that KYOCERA and KUTSCHER do not anticipate any of the claimed subject matter for this reason alone.

Regarding NOMURA, it is noted that this document does not appear to teach or suggest the present invention. In particular, NOMURA states:

> Observation of a wearing progress in a coated cemented carbide insert in greater detail teaches that the wearing progress is relatively slow in the vicinity of a ridgeline 3 as shown in FIG. 4 and FIG. 5 and the coating film 7 is locally peeled off and carried away by chips in a region where the coating film remains sufficiently thick, whereby to cause the film-peeled damage 6, expose the cemented carbide substrate 8, further cause local wearing to progress, deteriorate the grade of the finished surface of a workpiece and promote the flank wear itself.

Column 3, lines 41-51; emphasis added.

> As shown in FIG. 5, wearing gradually proceeds from the initial stage of cutting on the rake face and flank face to give smooth surfaces, whereas wearing of the coating film does not so proceed and the surface roughness of the coating film is substantially [sic] maintained during cutting as it is at the ridgeline 3 that is present as "dead zone" during cutting.

Column 4, lines 25-31.

Accordingly, NOMURA appears to suggest that the "dead zone" is the area of the blade that requires particular attention in terms of surface roughness, and that "the wearing progress is relatively slow in the vicinity of the ridgeline 3".

According to the present invention, on the other hand, the "rake face side" and "flank side" of the blade-edge ridge are particularly important areas of the claimed cutting tool.

Specifically, as set forth at page 5 of the present specification, the range of the smooth surfaces is set to be in a range in which crater friction and adhesion occur due to friction with chips in the section from the blade-edge ridge toward the rake face side. At the flank side, the range for a smooth formation is set to a range in which chips due to micro-chipping of the coating layer may weld, adhere, and cause abnormal wear to progress, or surface unevenness or adhered matter on the surface of the coating layer may be transferred onto a work piece and cause the surface roughness of the machined work piece to deteriorate.

Accordingly, NOMURA does not cure the deficiencies of KYOCERA and KUTSCHER and in particular, does not appear to teach or suggest that a surface roughness of 0.2 μm or less within a certain region of the rake face side and flank side of the blade-edge ridge of the cutting tool is advantageous.

For at least the above reasons, the rejection of claims 11-30 under 35 U.S.C. § 103(a) is without merit, wherefore withdrawal of this rejection is warranted as well, and respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all of the claims in this application are in condition for allowance, which action is respectfully requested. If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to telephone the undersigned at the telephone number below.

Respectfully submitted,
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